WHAT IS CLAIMED IS:

1. A glow plug comprising:

a main metal shell;

a resistance heater disposed in the main metal shell such that the leading end of said resistance heater projects over either end surface of said main metal shell, wherein

the surface of said main metal shell is coated with a chromate film containing trivalent chrome by 95 wt% or more of contained chrome components and having a thickness of 0.2 μm to 0.5 μm.

2. The glow plug according to claim 1, wherein said chromate film substantially contains no chrome component.

3. The glow plug according to claim 1, wherein an energizing terminal shaft for energizing said resistance heater is disposed such that the rear end of said energizing terminal shaft projects over another end surface of said main metal shell, a nut for securing a power supply cable to said energizing terminal shaft is engaged to a male thread portion formed in the rear end portion of said energizing terminal shaft, and

at least a portion of the surface of said nut is coated with said chromate film.

4. The glow plug according to claim 1, wherein the content of sodium components contained in said chromate film is 2 wt% to 7 wt%.

5. The glow plug according to claim 1, wherein at least one of said main metal shell and said nut are coated with a zinc-plated film as a base metal layer for said chromate film.

6. The glow plug according to claim 5, wherein when chapter five "neutral salt water spray test" of anti-corrosion test of plating conforming to JIS H8502 is performed, time for which white rust appears by about 20 % or more of the overall surface caused from corrosion of the zinc-plated film is 40 hours or longer.

7. The glow plug according to claim 5, wherein when heating at 200°C in the atmosphere for 30 minutes is performed and chapter five "neutral salt water spray test" of anti-corrosion test of plating conforming to JIS H8502 is performed, time for which white rust appears by about 20 % or more of the overall surface caused from corrosion of the zinc-plated film is 40 hours or longer.

8. The glow plug according to claim 5, wherein when chapter seven "CASS test" of anti-corrosion test of plating conforming to JIS H8502 is performed, time for which white

rust appears by about 20 % or more of the overall surface caused from corrosion of the zinc-plated film is 20 hours or longer.

9. A method of manufacturing a glow plug incorporating a resistance heater disposed in a main metal shell such that the leading end of said resistance heater projects over either end surface of said main metal shell, said method of manufacturing a glow plug comprising the step of:

immersing said main metal shell in a chromate processing bath containing trivalent chrome salt and a complexing agent for said trivalent chrome mixed therein so that a chromate film containing trivalent chrome by 95 wt% or more of contained chrome components and having a thickness of 0.2 μm to 0.5 μm is formed on the surface of said main metal shell.

10. The method of manufacturing a glow plug according to claim 9, wherein said chromate processing bath is performed such that the temperature of said bath is set to be 20°C to 80°C.

11. The method of manufacturing a glow plug according to claim 9, wherein said main metal shell is immersed in said chromate processing bath for 20 seconds to 80 seconds.

12. The method of manufacturing a glow plug according to claim 9, wherein sodium salt in a predetermined quantity is mixed in said chromate processing bath in such a manner

that the content of the sodium components contained in the obtained chromate film is 2 wt% to 7 wt%.

13. A spark plug comprising:

a central electrode;

an insulating member disposed on the outside of said central electrode;

a main metal shell disposed on the outside of said insulating member; and

a ground electrode disposed opposite to said central electrode such that a spark discharge gap is formed;

wherein the surface of said main metal shell is coated with a chromate film containing trivalent chrome by 95 wt% or more of contained chrome components and having a thickness of 0.2 μm to 0.5 μm.

14. The spark plug according to claim 13, wherein said chromate film substantially contains no chrome component.

15. The spark plug according to claim 13, further comprising a ring-shaped gasket to be fitted to the base portion of a joining thread portion formed on the outer surface of said main metal shell;

wherein at least a portion of said gasket is coated with said chromate film.

16. The spark plug according to claim 13, wherein the content of sodium components contained in said chromate film is 2 wt% to 7 wt%.

17. The spark plug according to claim 13, wherein said main metal shell or both of said main metal shell and said gasket are coated with a zinc-plated film as a base metal layer for said chromate film.

18. The spark plug according to claim 17, wherein when chapter five "neutral salt water spray test" of anti-corrosion test of plating conforming to JIS H8502 is performed, time for which white rust appears by about 20 % or more of the overall surface caused from corrosion of the zinc-plated film is 40 hours or longer.

19. The spark plug according to claim 17, wherein when heating at 200°C in the atmosphere for 30 minutes is performed and chapter five "neutral salt water spray test" of anti-corrosion test of plating conforming to JIS H8502 is performed, time for which white rust appears by about 20 % or more of the overall surface caused from corrosion of the zinc-plated film is 40 hours or longer.

20. A spark plug according to claim 17, wherein when chapter seven "CASS test" of anti-corrosion test of plating conforming to JIS H8502 is performed, time for which white

rust appears by about 20 % or more of the overall surface caused from corrosion of the zinc-plated film is 20 hours or longer.

21. A method of manufacturing a spark plug incorporating a central electrode, an insulating member disposed on the outside of said central electrode, a main metal shell disposed on the outside of said insulating member and a ground electrode disposed opposite to said central electrode to form a spark discharge gap, said method of manufacturing a spark plug comprising the step of:

immersing said main metal shell in a chromate processing bath containing trivalent chrome salt and a complexing agent for said trivalent chrome mixed therein so that a chromate film containing trivalent chrome by 95 wt% or more of contained chrome components and having a thickness of 0.2 μm to 0.5 μm is formed on the surface of said main metal shell.

22. The method of manufacturing a spark plug according to claim 21, wherein said chromate processing bath is performed such that the temperature of said bath is set to be 20°C to 80°C.

23. The method of manufacturing a spark plug according to claim 21, wherein said main metal shell is immersed in said chromate processing bath for 20 seconds to 80 seconds.

24. The method of manufacturing a spark plug according to claim 21, wherein sodium salt in a predetermined quantity is mixed in said chromate processing bath in such a manner that the content of the sodium components contained in the obtained chromate film is 2 wt% to 7 wt%.